

WHAT IS CLAIMED IS:

1. A fuel injection pump comprising:
a plunger barrel;
a sub port for overflow of fuel formed in the plunger barrel;
a cold start device for advancing injection timing in a cold temperature condition, the cold start device using a piston for opening and closing the sub port; and
a governor, wherein the governor performs cold governing for decreasing injected fuel so as to decrease an injected fuel quantity at a time of engine start in a cold temperature condition.
2. The fuel injection pump according to claim 1, wherein a timing for turning the decreased fuel injection for the engine starting in the cold temperature into normal fuel injection for the engine in a normal temperature condition is set before or simultaneous to a timing for switching-off the switched-on cold start device.
3. The fuel injection pump according to claim 1 or 2, the governor including an electronic actuator for the cold governing for decreasing injected fuel, wherein a temperature of engine-cooling water is detected for switch-on/off of the cold start device and for execution/cancel of the cold governing for decreasing injected fuel with the governor.
4. The fuel injection pump according to claim 3, the cold start device being a thermoelement cold start device sensing the temperature of the engine-cooling water, wherein the governor has a sensor for detecting the temperature of the engine-cooling water disposed on the upstream side of a thermoelement portion of the cold start device in flow of the engine-cooling water.
5. The fuel injection pump according to claim 3, the cold start device being an electronic cold start device, wherein the temperature of the engine-cooling water is detected by a single sensor for switch-on/off of the electronic cold start device and for execution/cancel of the cold governing for decreasing injected fuel with the governor.

6. The fuel injection pump according to claim 1, the governor being an electronic governor, wherein the governor performs droop governing during the switch-on condition of the cold start device and for a certain period after the shift of the switched-on cold start device into the switch-off condition, and wherein the governor performs isochronous governing for the rest period while the cold start device is switched off.

7. The fuel injection pump according to claim 1, the governor being an electronic governor, wherein the governor is provided with two map data for controlling a maximum rack position of the governor, wherein one of the map data is selected when the cold start device is switched on, and the other map data is selected when the cold start device is switched off.

8. The fuel injection pump according to claim 1, the governor being a mechanical governor, wherein a multi-step actuating solenoid is provided for moving a fulcrum of a governor lever of the mechanical governor in a fuel decreasing direction and in a fuel increasing direction.

9. A fuel injection pump comprising a cold start device for advancing injection timing, the cold start device being an electronic cold start device sensing a temperature of engine-cooling water, wherein the cold start device is switched off when a certain time is passed after an engine starts in a cold temperature condition, even if the increased temperature of the engine-cooling water does not reach a certain value.

10. A fuel injection pump comprising a cold start device for advancing injection timing, the cold start device being an electronic cold start device sensing a temperature of engine-cooling water, wherein the cold start device is switched off based on detection of a signal indicating that a clutch of a working machine is engaged immediately after an engine starts in a cold temperature.